

CLAIMS

1. An olefin copolymer comprising [A] a cyclic olefin, [B] an aromatic vinyl compound and [C] an aliphatic  $\alpha$ -olefin having from 2 to 20 carbon atoms, which is characterized in that (1) the component [A] accounts for from 0.1 to 30 mol%, the component [B] accounts for from 0.1 to 49.9 mol%, and the total of the components [A] and [B] accounts for from 0.2 to 50 mol%, and (2) the copolymer has a glass transition temperature Tg of lower than 60°C.

2. The olefin copolymer as claimed in claim 1, wherein the component [A] accounts for from 0.1 to 10 mol%, the component [B] accounts for from 0.1 to 45 mol%, and the total of the components [A] and [B] accounts for from 0.2 to 50 mol%.

3. The olefin copolymer as claimed in claim 1 or 2, of which the glass transition temperature Tg is lower than 30°C.

4. The olefin copolymer as claimed in any of claims 1 to 3, of which the limiting viscosity  $[\eta]$  measured in decalin at 135°C falls between 0.01 and 20 dl/g.

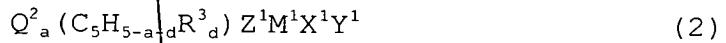
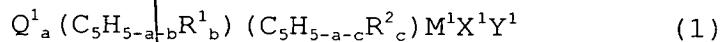
5. The olefin copolymer as claimed in any of claims 1 to 4, of which the tensile modulus is at most 600 MPa.

6. The olefin copolymer as claimed in any of claims 1 to 5, of which the internal haze is at most 20 %.

7. The olefin copolymer as claimed in any of claims 1 to 6, which is obtained by polymerizing a cyclic olefin, an aromatic vinyl compound and an aliphatic  $\alpha$ -olefin having from

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2 to 20 carbon atoms in the presence of an olefin polymerization catalyst that comprises (D) at least one selected from transition metal compounds of Groups 4 to 6 of the Periodic Table and transition metal compounds of Groups 8 to 10 of the Periodic Table of the following general formulae (1) to (4), and (E) at least one selected from a compound group of (e-1) oxygen-containing organometallic compounds, (e-2) ionic compounds capable of reacting with the transition metal compounds to form ionic complexes, and (e-3) clay, clay minerals and ion-exchanging layered compounds:



wherein Q<sup>1</sup> represents a bonding group that crosslinks the two conjugated five-membered cyclic ligands (C<sub>5</sub>H<sub>5-a-b</sub>R<sup>1</sup><sub>b</sub>) and (C<sub>5</sub>H<sub>5-a-c</sub>R<sup>2</sup><sub>c</sub>); Q<sup>2</sup> represents a bonding group that crosslinks the conjugated five-membered cyclic ligand (C<sub>5</sub>H<sub>5-a-d</sub>R<sup>3</sup><sub>d</sub>) and the group Z<sup>1</sup>; R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> each represent a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group, or a boron-containing hydrocarbon group; and a plurality of these groups, if any, may be the same or different, and may be bonded to each other to form a cyclic structure; a represents 0, 1 or 2; b, c and d each

represent an integer of from 0 to 5 when  $a = 0$ , or an integer of from 0 to 4 when  $a = 1$ , or an integer of from 0 to 3 when  $a = 2$ ;  $e$  is an integer of from 0 to 5;  $M^1$  represents a transition metal of Groups 4 to 6 or Groups 8 to 10 of the Periodic Table;  $M^2$  represents a transition metal of Groups 8 to 10 of the Periodic Table;  $L^1$  and  $L^2$  each represent a covalent-bonding or coordination-bonding ligand, and they may be bonded to each other;  $X^1$ ,  $Y^1$ ,  $Z^1$  and  $W^1$  each represent a covalent-bonding or ionic-bonding ligand, and  $X^1$ ,  $Y^1$  and  $W^1$  may be bonded to each other.

8. Films and sheets formed from the olefin copolymer of any of claims 1 to 7.

Add A2Y      Add B4